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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/772,176	01/29/2001	James A. Proctor JR.	2479.2071-000	1093
21005	7590	10/12/2004		
HAMILTON, BROOK, SMITH & REYNOLDS, P.C. 530 VIRGINIA ROAD P.O. BOX 9133 CONCORD, MA 01742-9133				
			EXAMINER CHANG, EDITH M	
			ART UNIT 2637	PAPER NUMBER

DATE MAILED: 10/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/772,176

Applicant(s)

PROCTOR, JAMES A.

Examiner

Edith M Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed on July 28, 2004, have been fully considered but they are not persuasive.

Applicant argues that Cheng using the energy to derive an estimate of the speed of the mobile unit relative to the base station is quite different from Applicant's use of modulation attributes.

The energy is represented by amplitude squared; therefore energy is the modulation attribute if the amplitude is the modulation attribute. In FIG.4 and Abstract, Cheng discloses the AGC (automatic gain control) providing the metric as the function of a change in the amplitude in term as the function of a change in the energy in light of the specification (page 4 lines 10-15). The energy used to derive the speed of the mobile unit relative to the base station is indicative of the changing environment, in light of the specification (page 4 lines 11-12) that the motion of the mobile is indicated for the rapid changing. Hence, Cheng discloses the metric indicative of a changing environment as a function of a change in *at least one* modulation attribute *as cited in the claims*.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-8, 11, 14, 18-28, 31, 34 and 38-42 are rejected under 35 U.S.C. 102(b) as being anticipated by Cheng et al. (US 5438595).

Regarding **claims 1-2, 21-22 & 41**, Cheng et al. discloses the apparatus and its method in A communication system having a signaling path in a wireless link between a first station and a second station (Abstract, FIG.1, the first station is the stationary unit/base station and the second station is the mobile, column 2 lines 40-43), comprising: in at least one station, a processing unit/means (FIG.1 24) to calculating a metric (FIG.4 AFC, AGC/FIG.9 sampling phase adjust) indicative of a changing environment between the first and second stations as a function of a change in at least one modulation attribute of a signal transmitted across the wireless link (column 2 lines 21-27 & lines 38-43, where the energy is measured at the mobile station to estimate the speed of the mobile unit); and a compensator/means (FIG.4 74/76 AFC/AGC) to adjust a least one parameter (FIG.4 AFC frequency/AGC amplitude) affecting the performance of the wireless link to compensate for the changes affecting the signaling path.

Regarding **claims 3-4 & 23-24**, Cheng et al. discloses the metric is indicative of motion of at least one of the stations (column 2 lines 21-27 & lines 38-43, where the energy is measured at the mobile station to estimate the speed of the mobile unit)/objects in the signaling path (column 1 lines 60-65, column 13 lines 55-58, where the ISI of the signal is caused by the motion of objects in the signaling path that changes the multipath).

Regarding **claims 5-7 & 25-27**, Cheng et al. discloses the metric is computed from a signal in an Automatic Gain Control loop (FIG.4 76 AGC loop), the metric is a function of a statistic/variance of the signal in the AGC loop (column 13 lines 5-55).

Regarding **claims 8 & 28**, Cheng et al. discloses the metric is computed from a phase error signal produced by a matched filter in a receiver unit in one of the station (FIG.9 the Sampling Phase Adj. Signal).

Regarding **claims 11 & 31**, Cheng et al. discloses the metric is computed from a frequency error signal in a frequency control loop in a receiver unit in one of the stations (FIG.4 AFC, column 10 lines 50-55).

Regarding **claims 14 & 34**, Cheng et al. discloses comparing the metric to a threshold level (106/112 FIG.7, column 14 lines 36-40).

Regarding **claims 18 & 38**, Cheng et al. discloses the parameter including at least the power level and the modulation attribute (FIG.4 76 AGC adjusting the amplitude and power).

Regarding **claims 19 & 39**, Cheng et al. discloses reducing the frequency offset/modulation attribute to a minimum level (column 9 lines 20-30, column 10 lines 36-38, lines 50-55, where the frequency offset/error is reduced to a minimum level as designed).

Regarding **claims 20 & 40**, Cheng et al. discloses the modulation attribute including amplitude, frequency, phase, or combination thereof (FIG.4).

Regarding **claim 42**, Cheng et al. discloses a computer-readable medium (FIG.1 24/26/28, column 3 line 67-column 4 line 44, where ROM DSP is the computer-readable medium) having stored sequences of instructions of which when executed by a processor (FIG.1 22-32, the DSPs and FPGA), causes the processor to perform in at least one station, a processing unit/means (FIG.1 24) to calculating a metric (FIG.4 AFC, AGC/FIG.9 sampling phase adjust) indicative of a changing environment between the first and second stations as a function of a change in at least one modulation attribute of a signal transmitted across the wireless link

(column 2 lines 21-27 & lines 38-43, where the energy is measured at the mobile station to estimate the speed of the mobile unit); and a compensator/means (FIG.4 74/76 AFC/AGC) to adjust a least one parameter (FIG.4 AFC/AGC) affecting the performance of the wireless link to compensate for the changes affecting the signaling path.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 9-10, 12-13, 15-17, 29-30, 32-33 and 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng et al. (US 5438595) in view of Thomas (US 6697642 B1).

Regarding **claims 15-17 & 35-37**, Cheng et al. does not specify the antenna mode, however Thomas teaches changing an antenna mode from directive to omni-directional or from omni-directional to directive (FIG.5/FIG.7-8, column 2 lines 19-24, column 10 lines 12-30, column 16 lines 38-42). As Cheng et al. measuring the mobile's moving to improve the accuracy of the received signal (column 1 lines 5-15 '595) and Thomas teaches using the mobile' moving to control the antenna mode to get more accurate received signal (column 17 lines 40-55 '642), at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the antenna mode taught by Thomas in Cheng et al.'s wireless station to search the optimum signal direction by control the antenna mode to get the optimum

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signal/communications quality to improve the transmission rate (column 1 line 60-column 2 line5, column 8 lines 3-15).

Regarding **claims 9-10, 12-13, 29-30 & 32-33**, Cheng et al. discloses frequency/phase error signal is a statistic function (FIG. 10), but does not explicitly specify the frequency/phase error signal is the variance of the statistic function, however Thomas teaches the signal quality measurement (FIG. 4 514, column 8 lines 3-13). As Cheng et al. measuring the quality of the signal (95 FIG. 5, column 6 lines 21-26, measuring the RSSI) and Thomas teaches the signal quality level measuring unit which may determine signal quality by giving a RSSI and the signal to noise ration (column 8 lines 3-13), at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the control unit of measuring the quality of the signal taught by Thomas in the Cheng et al.'s demodulator (80 FIG.4 '595) to have the signal to noise ratio as well to provide various controls to get more accurate/qualified signal (FIG. 8, column 8 lines 14-15, column 16 lines 21-32). The signal to noise ration (SNR) is provided prevailingly as a measurement of the quality of signal in the wireless communication system, wherein the frequency/phase error signal is the variance of the statistic function in the SNR measurement.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after

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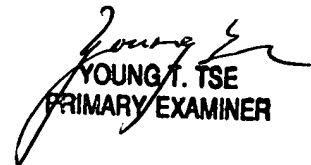
the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edith M Chang whose telephone number is 571-272-3041. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jayanti Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Edith Chang
October 7, 2004


YOUNG T. TSE
PRIMARY EXAMINER